

What is claimed is:

1. An apparatus for handling manufactured ferrous components for inspection comprising:

a first rotatable disc having an inspection side surface on which said components are carried and a noninspection-side surface, said first rotatable disc operable to rotate in a first direction;

a first nonrotatable magnet, said first nonrotatable magnet adjacent to said noninspection-side surface of said first rotatable disc and operable to provide a magnetic force to secure said components to said inspection-side surface of said first rotatable disc;

a second rotatable disc having an inspection side surface and a noninspection-side surface, said second rotatable disc operable to rotate in a second direction and, at a point of overlapping, overlapping a portion of said first rotatable disc such that said inspection-side surface of said second rotatable disc faces said inspection-side surface of first rotatable disc; and

a second nonrotatable magnet adjacent to a noninspection-side surface of said second rotatable disc, said second nonrotatable magnet having a higher magnetic force than said magnetic force of said first nonrotatable magnet thereby causing said components to be transferred from said first non-rotatable disc to said second nonrotatable disc at said point of overlapping and operable to apply magnetic force to secure said components to said inspection-side surface of said second rotatable disc.

2. An apparatus for handling manufactured nonferrous components for inspection comprising:

a first rotatable disc having an inspection side surface on which said components are carried and a noninspection-side surface, said first rotatable disc operable to rotate in a first direction and having a plurality of apertures therethrough;

a first vacuum plenum adjacent to said noninspection-side surface of said first rotatable disc and operable to apply a vacuum through said apertures to secure said components to said inspection-side surface of said first rotatable disc;

a second rotatable disc having an inspection-side surface and a noninspection-side surface, said second rotatable disc having apertures therethrough, operable to rotate in a second direction, and at a point of overlapping, overlapping a portion of said first rotatable disc such that said inspection-side surface of said second rotatable disc faces said inspection-side surface of first rotatable disc; and

a second vacuum plenum adjacent to a noninspection-side surface of said second rotatable disc and operable to provide a vacuum through said apertures, said vacuum being stronger than said vacuum of said first vacuum plenum thereby causing said components to be transferred from said first nonrotatable disc to said second nonrotatable disc at said

point of overlapping and providing a vacuum to secure said components to said inspection-side surface of said second rotatable disc.

3. The apparatus of Claims 1 or 2, further comprising:

a first inspection station, said first inspection station being positioned substantially adjacent to said first disc;

a first rejection assembly;

a second inspection station, said second inspection station being positioned substantially adjacent to said second disc; and

a second rejection assembly.

4. The apparatus of Claims 1 or 2, further comprising:

an infeed sensor;

a drive shaft;

a shaft encoder, said shaft encoder being mounted on said shaft;

a camera; and

a strobe.

5. An apparatus for handling ferrous components for inspection comprising:

a first rotatable disc having an inspection side surface on which said components are carried and a noninspection-side surface, said first rotatable disc operable to rotate in a first direction;

a first nonrotatable magnet, said first non-rotatable magnet adjacent to said non-inspection side surface of said first rotatable disc and operable to provide a magnetic force to secure said components to said inspection-side surface of said first rotatable disc;

a second rotatable disc having an inspection side surface and a noninspection-side surface, said second rotatable disc operable to rotate in a second direction, and at a point of overlapping, overlapping a portion of said first rotatable disc such that said inspection-side surface of said second rotatable disc faces said inspection-side surface of first rotatable disc;

a second non-rotatable magnet adjacent to a noninspection-side surface of said second rotatable disc, said second non rotatable magnet operable to apply magnetic force to secure said components to said inspection-side surface of said second rotatable disc; and

a transfer station operable to transfer said components from said inspection-side surface of said first rotatable disc to said inspection-side surface of said second rotatable disc.

6. An apparatus for handling manufactured nonferrous components for inspection, comprising:

a first rotatable disc having an inspection-side surface on which said components are carried and a noninspection-side surface, said first rotatable disc operable to rotate in a first direction and having a plurality of apertures therethrough;

a first vacuum plenum adjacent to said noninspection-side surface of said first rotatable disc and operable to apply a vacuum through said apertures to secure said components to said inspection-side surface of said first rotatable disc;

a second rotatable disc having an inspection-side surface and a noninspection side surface, said second rotatable disc having apertures therethrough and operable to rotate in a second direction, and at a point of overlapping, overlapping a portion of said first rotatable disc such that said inspection-side surface of said second rotatable disc faces said inspection-side surface of first rotatable disc;

a second vacuum plenum adjacent to a noninspection side surface of said second rotatable disc and operable to apply a vacuum through said apertures to secure said components to said inspection-side surface of said second rotatable disc; and

a transfer station operable to transfer said components from said inspection-side surface of said first rotatable disc to said inspection-side surface of said second rotatable disc.

7. An apparatus according to Claims 1, 2, 5, or 6, wherein said components have a first and second side, said first rotatable disc operable for the inspection of said first side of said components and said second rotatable disc operable for inspection of said second side of said components.

8. A method of handling components for inspection comprising the steps of:

placing said components on a first rotating disc to inspect a first side of said components;

magnetically securing said components to said first rotating disc;

inspecting said first side of each of said components and providing data of inspection;

analyzing said image to determine whether said component passes or fails pre-selected standards;

rejecting said component if said component fails to meet pre-selected standards;

transferring said component to a second rotating disc to inspect a second side of said components ;

magnetically securing said components to said second rotating disc;

inspecting said second side of each of said components and providing data of inspection;

analyzing said data of inspection to determine whether said component passes or fails said pre-selected standards; and

rejecting said component if said component fails to meet preselected standards.

9. The method of Claim 8 wherein said step of transferring comprises providing a magnetic force to said second rotating disc that is stronger than a magnetic force applied to said first rotating disc thereby causing said components to be transferred.

10. A method of handling components for inspection comprising the steps of:

placing said components on a first rotating disc to inspect a first side of said components;

securing said components to said first rotating disc by applying a vacuum through apertures in said first rotating disc;

inspecting said first side of each of said components and providing data of inspection;

analyzing said image to determine whether said component passes or fails pre-selected standards;

rejecting said component if said component fails to meet pre-selected standards;

transferring said component to a second rotating disc to inspect a second side of said components ;

securing said components to said second rotating disc by applying a vacuum through apertures in said second rotating disc;

inspecting said second side of each of said components and providing data of inspection;

analyzing said data of inspection to determine whether said component passes or fails pre-selected standards; and

rejecting said component if said component fails to meet said pre-selected standards.

11. The method of Claim 10 wherein said step of transferring comprises providing a vacuum to said second rotating disc that is stronger than a vacuum force applied to said first rotating disc thereby causing said components to be transferred.